Vitesse/MOSIS to offer InP HBT foundry services

Vitesse Semiconductor Corp. has announced it is the first company to provide InP HBT foundry services through MOSIS, a leading provider of low-cost prototyping and small-volume production services for IC (and optical IC) development. By working directly with MOSIS, customers will have access to Vitesse's proprietary InP VIP-1™ technology.

The VIP-1 process includes high performance SHBT devices with other active and passive devices and multiple levels of metal interconnect. This process has been qualified for production usage and has an expected turnaround time for prototype circuits of 13 weeks, which is more than two times faster than competitive technologies such as SiGe. InP foundry services from Vitesse and MOSIS are available today, with quarterly fabrication runs initially planned.

The VIP-1 process offers circuit designers the benefits of both high-speed and high-voltage operation suitable for digital, analog, and RF circuits at 10Ghz or higher. The process uses four-inch diameter semi-insulating substrates and is designed for high performance and high yield.

The key active device is an SHBT, characterized by fT =150GHz, FMAX =150GHz (at IC=1mA/μm), and BVCEO in excess of 4.5V. The process also includes resistors and capacitors, and three layers of metal interconnect. Device models and design rules are supported in the Cadence design environment and the robust process supports junction temperatures of 125°C.

"Vitesse is building on its past success in the manufacturing of III-V integrated circuits to make a cost-effective InP IC technology available to a broad user base. The access to volume manufacturing capability at a low cost and fast turn-around time is key to the wide spread adoption and usage of InP technology," said Ray Milano, vice president of Physical Media Devices at Vitesse.

The silicon-like interconnect and volume manufacturing capability developed by Vitesse makes this process technology ideal for many applications requiring the performance or optoelectronic properties of InP such as high-voltage drivers, high-frequency amplifiers, high-speed DACs and ADCs, adaptive RF electronics, automotive radar, low loss waveguides and optical components such as photodetectors.

Circuits, including Vitesse.s 10Gbps RZ modulator driver, 4:1 MUX and limiting amplifier, that were developed using this process have already been deployed into commercial telecommunications systems.

To demonstrate the abilities of the process, Vitesse produced the industry.s most complex InP integrated circuit, a 40Gbps 16:1 MUX with integrated PRBS 231-1 generator, which contains close to 5000 HBTs. Vitesse will continue to advance the uses of InP technology through the development of the next generation process: VIP-2, a dual HBT InP process with fT = 300GHz and BVCEO in excess of 10V.

"Vitesse's technology will provide many exciting opportunities for applications," said Wes Hansford, MOSIS deputy director. "More importantly, this program will also provide users with a smooth transition to large volume production as needed."

MOSIS will provide access to device models and design rules as well as reticle composition and overall schedule coordination. The circuit elements provided will include continuously scaleable parameterized cell transistors, resistors and capacitors, and ESD structures. Models are also available in ADS for microwave circuit design activity.

Photonics brand integration

Spectra-Physics has announced a brand integration with six Thermo Electron businesses, uniting the existing laser business with Laser Science, the operations and catalog of Oriel including Opticon, the specialty components of Corion, Hilger Crystals, and RGL (Richardson Gratings), and the imaging-camera business of CIDTEC. In terms of the breadth of technology involved, this is the single biggest brand merger in the history of the photonics industry.

Markets & Business

Researchers at **NRC's Institute for Microstructural Sciences** have developed a "spintronic" transistor, a nanoscale device that could revolutionize the storage and transmission of information. A team led by Drs. Pawel Hawrylak and Andy Sachrajda, has successfully created a prototype of a "single spin" transistor made from a quantum dot.

CyOptics is providing key modulation technology to Bandwidth9, a manufacturer of VCSEL-based tunable laser transmission products, for development of a tunable, extended-reach transmitter. CyOptics's amplified electro-absorption modulator, the EAM2010, is the modulation element within Bandwidth9's MetroFlex G2 transmitter product, which is a tunable alternative to fixed-wavelength transmitters.

INFICON Holding AG, maker of vacuum instrumentation and process control software, has acquired **New Vision Systems**, a leader in APC and lithography analysis for semi manufacturing.

Northrop Grumman has acquired **Fibersense Technology Corp.**, from **Audax Group**. The stock of Fibersense, a designer and manufacturer of fibre optic gyroscope-based navigation systems, was acquired for $44 m in cash. Fibersense, which has approximately 140 employees, designs and manufactures precision fibre optic gyroscopes, inertial measurement units and sensor components.

Intersil's EL7513 is a high frequency pulse width modulation (PWM) step-up regulator capable of driving up to a dozen LEDs while ensuring uniform brightness in white LED backlighting applications. "New generations of portable products use colour displays that depend on white LED backlighting to ensure brilliance and colour accuracy.